



Caltrans Division of Research,  
Innovation and System Information

# Research Results

Transportation  
Safety and  
Mobility

**OCTOBER 2013**

**Project Title:**

Evaluate High-Potential Areas for  
Overweight Trucks and Truck Accidents  
in California

**Task Number:** 1795

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**Product Category:** New algorithm and  
decision support tool

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## Preventing Overweight Trucks on the Roadways

*Overweight commercial trucks damage the highway infrastructure  
and are at higher risk for collision*

### WHAT WAS THE NEED?

Commercial trucks that weigh beyond the allowed limit have more serious collisions than legally loaded trucks or automobiles, posing a danger to the drivers and the traveling public. Overweight trucks often drive on roadways that were not created nor rated for the weight they carry, thereby incurring major maintenance costs. Caltrans has weigh-in-motion (WIM) systems and commercial vehicle enforcement facilities (CVEF) on California roadways to monitor commercial trucks, but drivers of overweight trucks often take advantage of alternative routes to bypass the weigh facilities. To reduce the number of overweight trucks on the roadways and to assist the California Highway Patrol (CHP) in enforcing truck-related laws, techniques to identify possible bypass routes and where to locate new weigh facilities are needed.

### WHAT WAS OUR GOAL?

The goal was to identify locations that would benefit from having weight enforcement facilities to reduce the number of overweight trucks on highways and lower truck-related collisions.



DRISI provides solutions and  
knowledge that improve  
California's transportation system.

## WHAT DID WE DO?

Caltrans identified and analyzed areas of high truck traffic volumes that have few or no weight-enforcement facilities. The locations of existing stations were mapped, along with the areas of high truck volumes and truck collisions, to determine if there is a correlation between the location of weight facilities and the sites experiencing high volumes and collisions.

The research team performed the following tasks to develop a strategy for future deployment of weight facilities:

- Identified high-risk areas by evaluating truck-related collisions
- Identified attributes in high-risk areas to help predict potential hazardous areas
- Identified areas with high truck traffic that have low levels of enforcement or few commercial vehicle enforcement facilities
- Developed algorithms to identify likely routes to place weight facilities to mitigate truck drivers' bypassing behavior
- Used case studies to refine and verify the bypass route identification algorithms

## WHAT WAS THE OUTCOME?

The analysis revealed 15 high truck traffic areas that lack weight enforcement facilities. These areas were recommended as candidates for future implementations. A prioritized list was developed to assist Caltrans and CHP in determining areas for enhanced enforcement.



## WHAT IS THE BENEFIT?

Overweight commercial trucks pose a hazard to the drivers and the traveling public, as well as accelerate the wear and tear of California's roadways. Installing more weigh facilities in highly traveled areas, especially on identified bypass routes, helps enforce commercial trucking laws. Weight enforcement decreases the number of overweight trucks on the highways, reducing the number of truck-related accidents and maintenance and repair costs.

## LEARN MORE

The final report will be available June 2014.

